# *CUSTOM PROVISIONAL RESTORATIVE MATERIALS*

LCDR R. L. Gunning, DC, USN

# Custom Provisional Restorative Materials

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# Provisional Restorative Materials

## Definition

A dental prosthesis worn for various periods of time which maintains esthetics, provides masticating surfaces and protects the hard and soft tissues prior to the delivery of the definitive prosthesis.

# Provisional Restorative Materials

## Purpose

- Provide predictable outcome
- Relates functional and esthetic requirements
- Satisfy biologic, mechanical, and esthetic requirements

# Provisional Restorative Materials

## Biologic Requirements

Pulp protection

Periodontal health

Positional stability

# Provisional Restorative Materials

## Mechanical Requirements

Durable

Easily removed

Diagnostic aid

# Provisional Restorative Materials

## Esthetic Requirements

- Texture, color, and translucency
- Color stability
- Guide to optimum esthetics

# Provisional Restorative Materials

## Ideal Properties

- Convenient handling
- Biocompatibility
- Dimensional stability
- Easily contoured and polished
- Adequate strength and abrasive resistance
- Esthetic

# Provisional Restorative Materials

## Psychological Implications

The transitional restoration serves as a medium of communication of many of the patient's fears, anxieties, and deep concerns about the loss of facial appearance, "normal expression", retention clarity of speech, and the ability to continue participation in social functions.

# Provisional Restorative Materials

## Phases of Therapy

- Diagnostic casts and wax-up
- Matrix fabrication
- Tooth preparation and provisional restoration construction
- Interim stage treatment evaluation

# Provisional Restorative Materials

Polycarbonate
Cellulose acetate
Aluminum
Nickel-chromium

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# Provisional Restorative Materials

## Matrices

- Acetate
- Silicone putty
- Alginate
- Baseplate wax

# Provisional Restorative Materials

## The selection

Polyethyl methylacrylate
Polymethyl methacrylate
Epimines
Bis-Acryl Composite
Microfill light cured
  UDMA composites

# Provisional Restorative Materials

## Poly R' Methacrylates

| Advantages | Disadvantages |
| --- | --- |
| Low curing heat | Wear resistance |
| Extended working time | Esthetics |
| Low cost | Color stability |
| | Unpleasant odor |

# Provisional Restorative Materials

## Poly R' Methacrylates

- Splintline
- Snap
- Trim
- Vita
- Temp plus

# Provisional Restorative Materials

## Polymethyl Methacrylate

### Advantages

- Wear resistance
- Color stability
- Polishability
- Esthetics
- Low cost

### Disadvantages

- High curing heat
- Polymerization shrinkage (8%)
- Adherence to tooth
- Working time
- Odor

# Provisional Restorative Materials

## Polymethyl Methacrylate

- Alike
- Duralay
- Jet
- Neopar
- Tab
- True Kit

# Provisional Restorative Materials

## Epimines

| Advantages | Disadvantages |
| --- | --- |
| Exothermic heat | Difficult to repair |
| Monomer content | Low hardness |
| Volumetric shrinkage | |

Example is Scutan

# Provisional Restorative Materials

## Bis-Acryl Composite Resins

### Advantages

- Low curing temperature
- Minimal polymerization shrinkage
- High tensile strength
- High surface hardness
- Improved marginal fit

### Advantages

- Good color stability
- Minimal odor
- High polishability
- Automix

### Disadvantages

- High cost

# Provisional Restorative Materials

## Categories

Chemical cured

Light cured only

Multi-phase

# Provisional Restorative Materials

## Chemical Cured

Luxatemp
Integrity
Protemp II
Protemp Garant

# Provisional Restorative Materials

## Light Cured

Inlay/Onlay

Fermit

Intertemp

Mirage

Crown and Bridge

Triad

# Provisional Restorative Materials

## Multi Phase

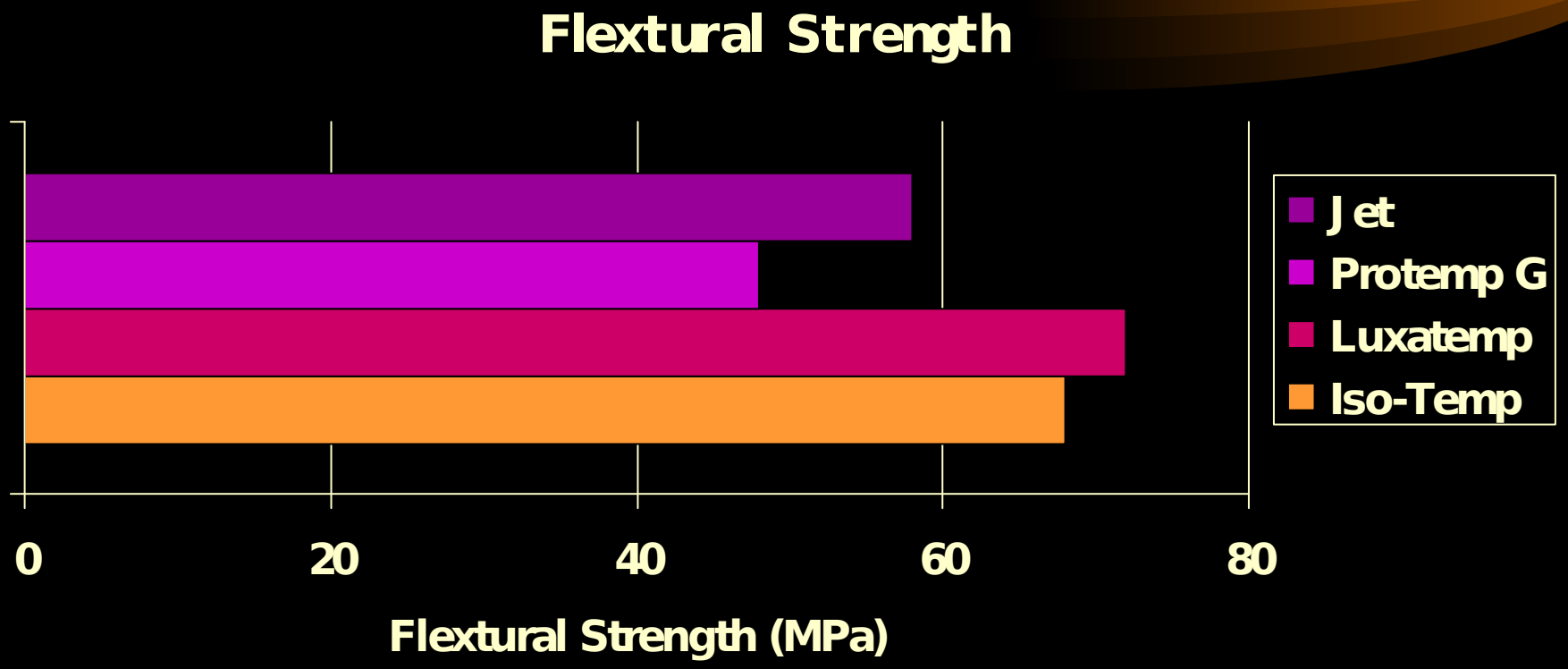
| | |
|---|---|
| Iso-Temp | Resin |
| Provipont DC | Isocyanate-polyol/dimethacrylate |
| Unifast LC | Methyl methacrylate |

# Provisional Restorative Materials

## Temperature Elevation

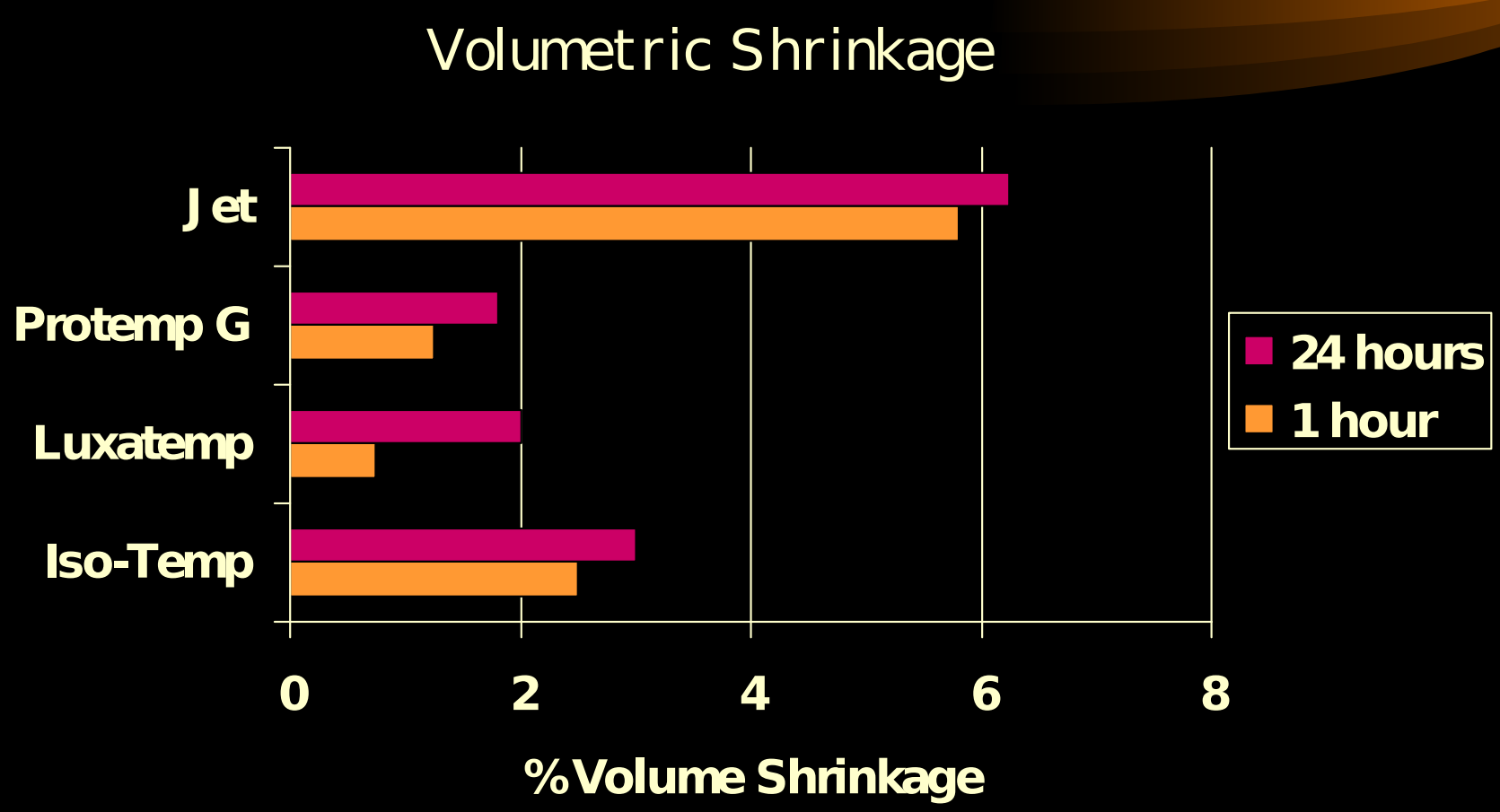
- Matrix
- Cooling Procedures
- Volume of material

# Provisional Restorative Materials




Flextural strength measures materials resistance to bending and fracturing.

# Provisional Restorative Materials



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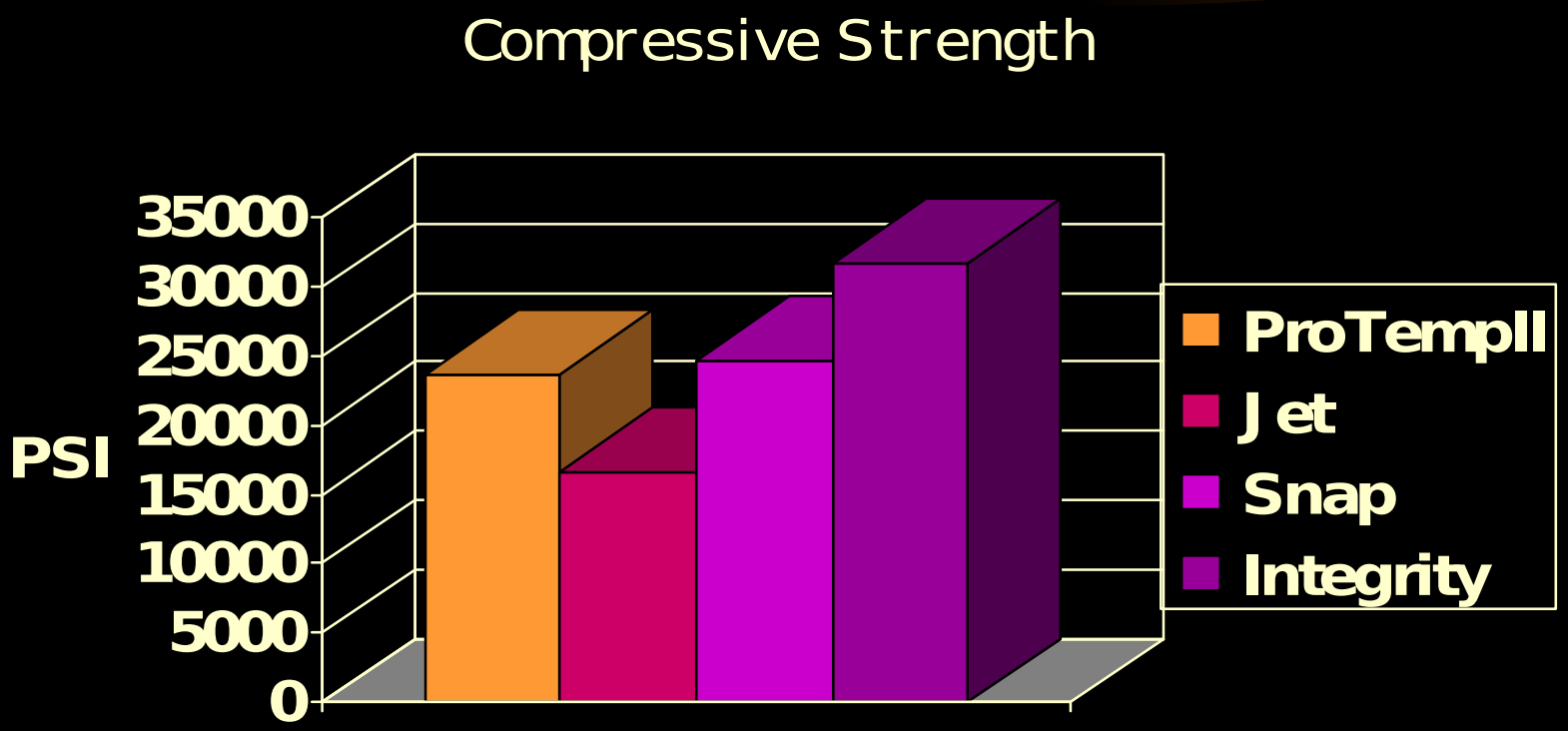

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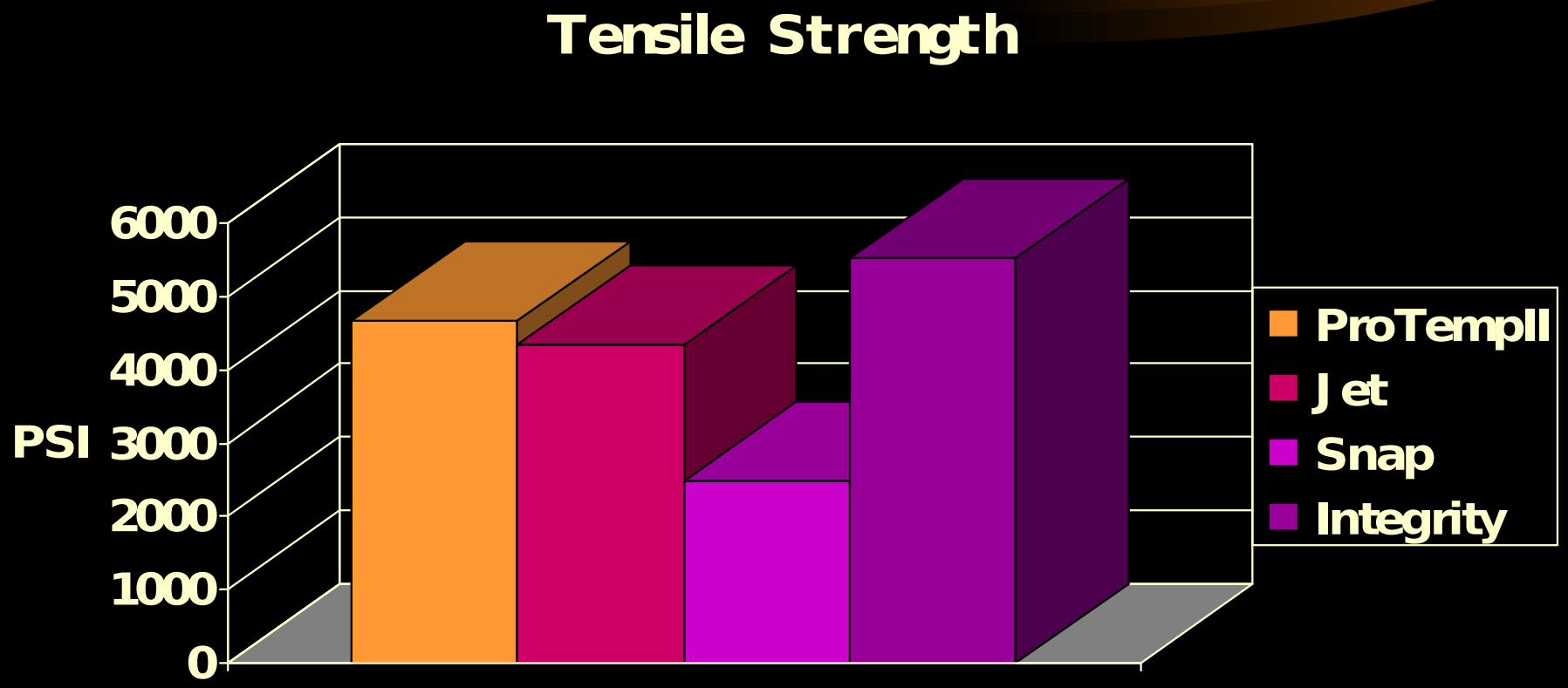

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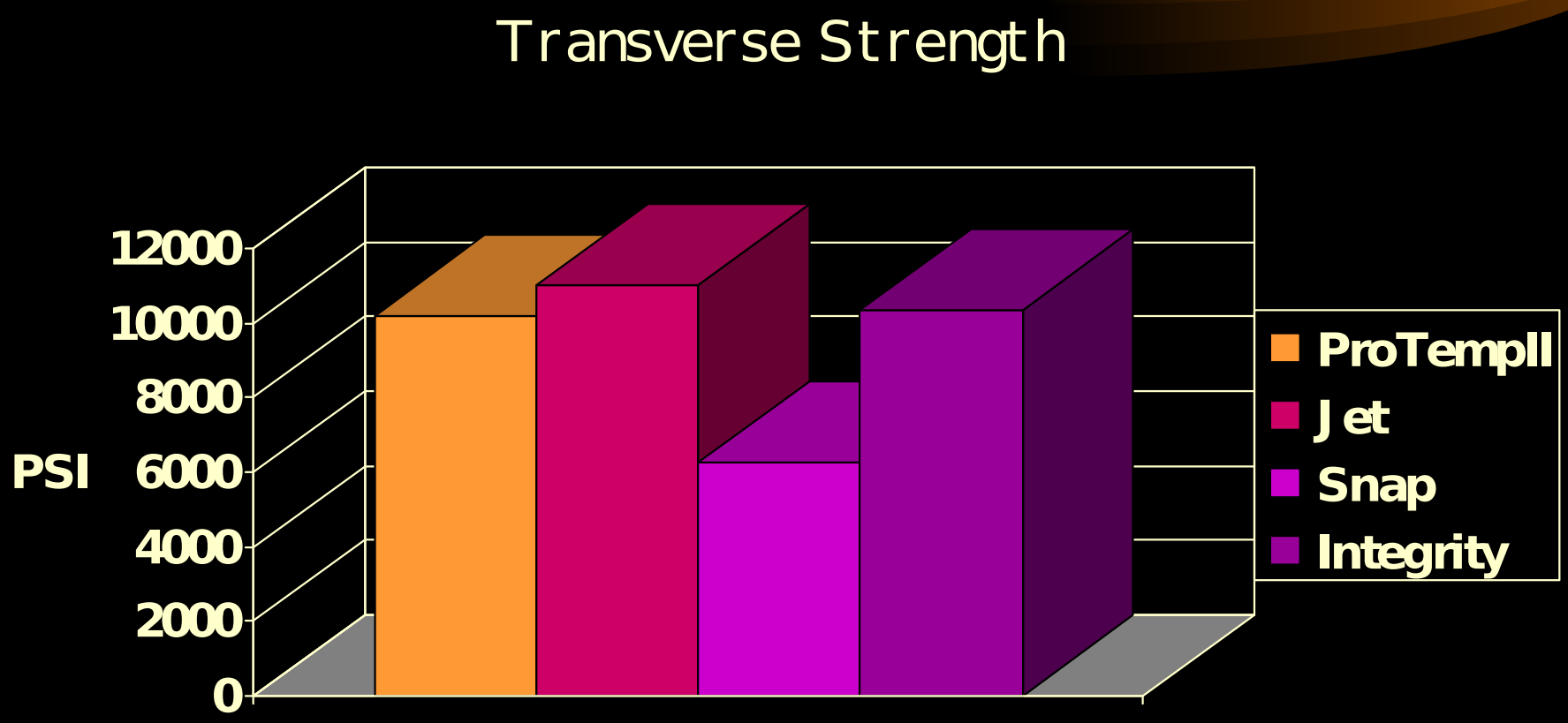

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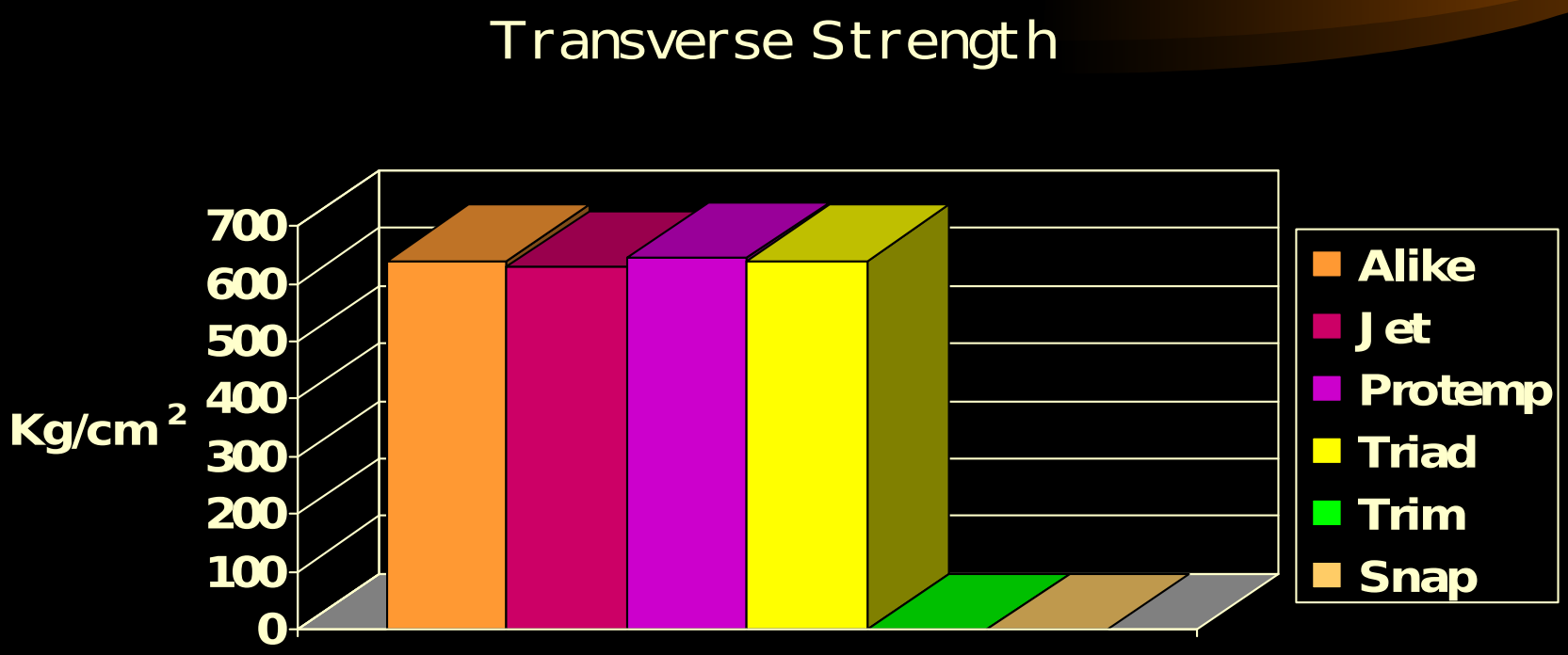


Wang RL, Moore BK, Goodacre CJ, et al. A comparison of resins for fabricating provisional fixed restorations. Int J Prosthodont 1989; 2:173-84

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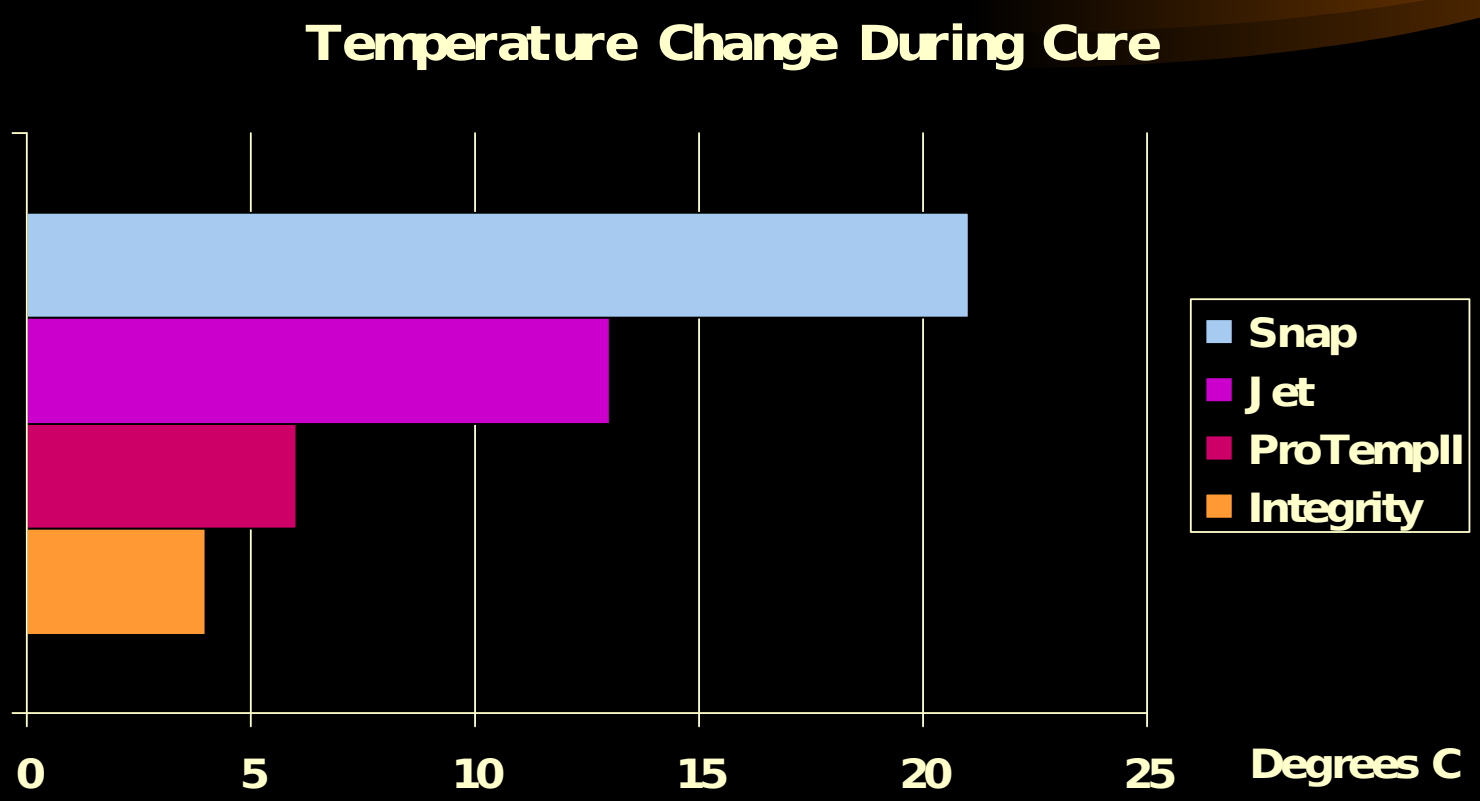

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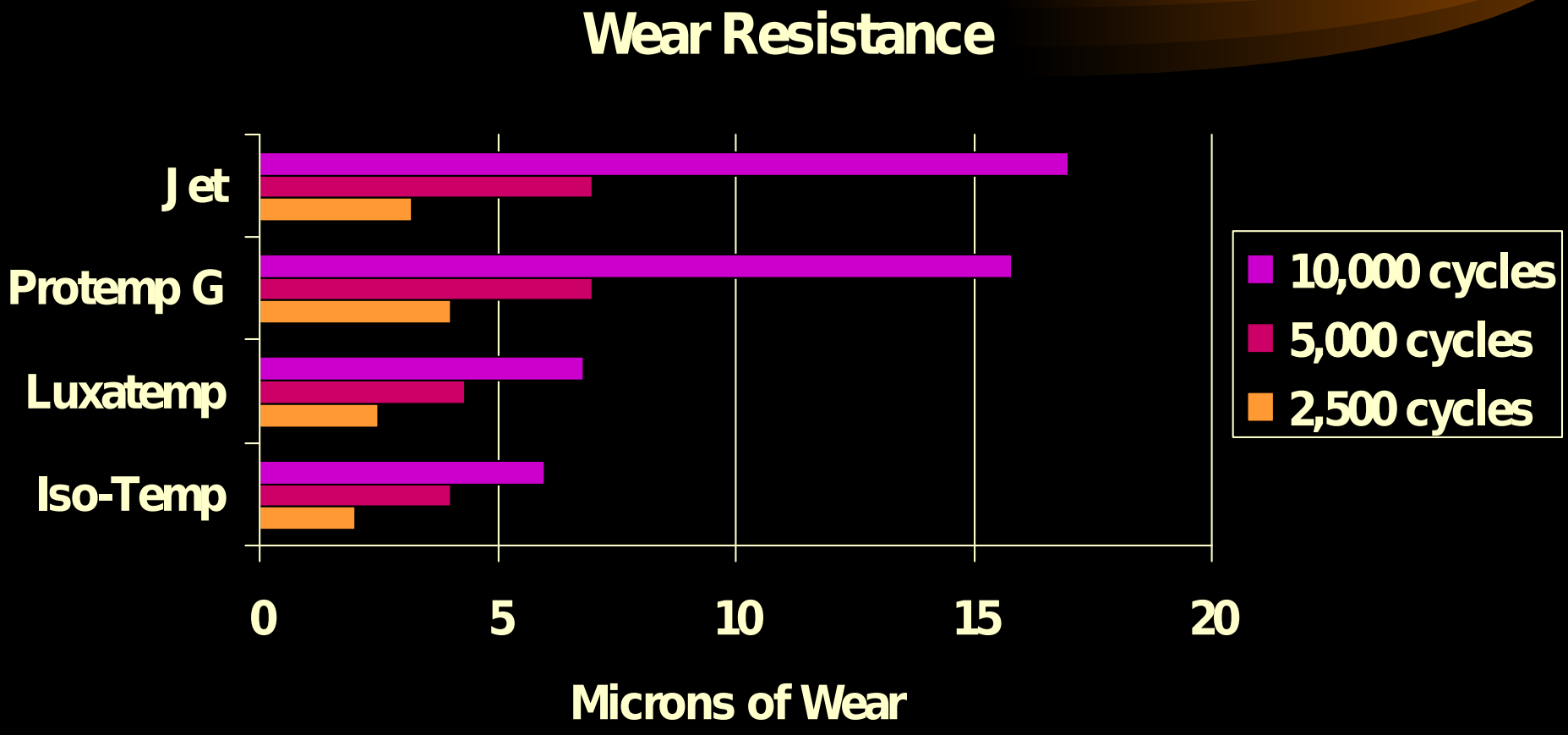

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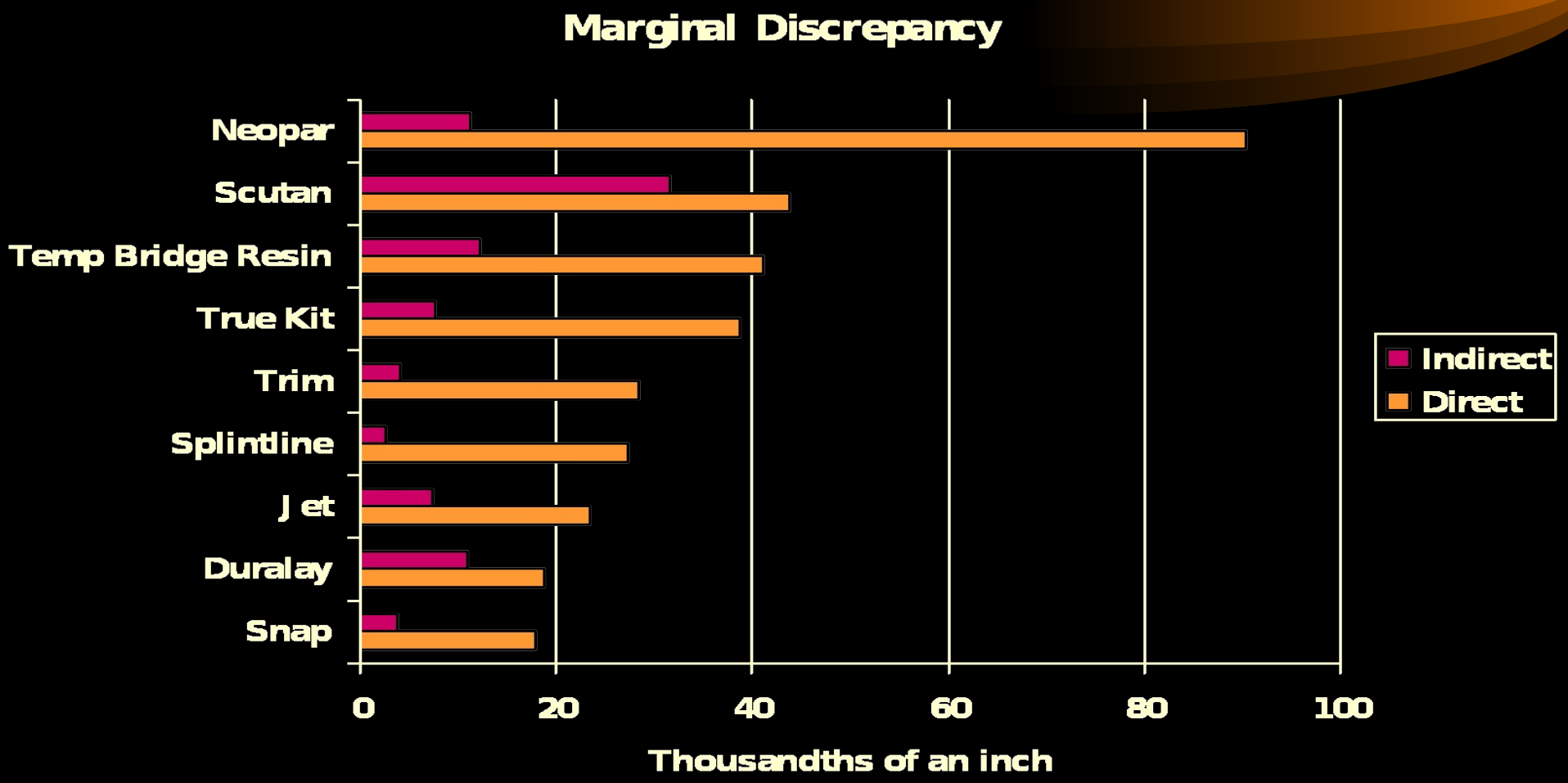

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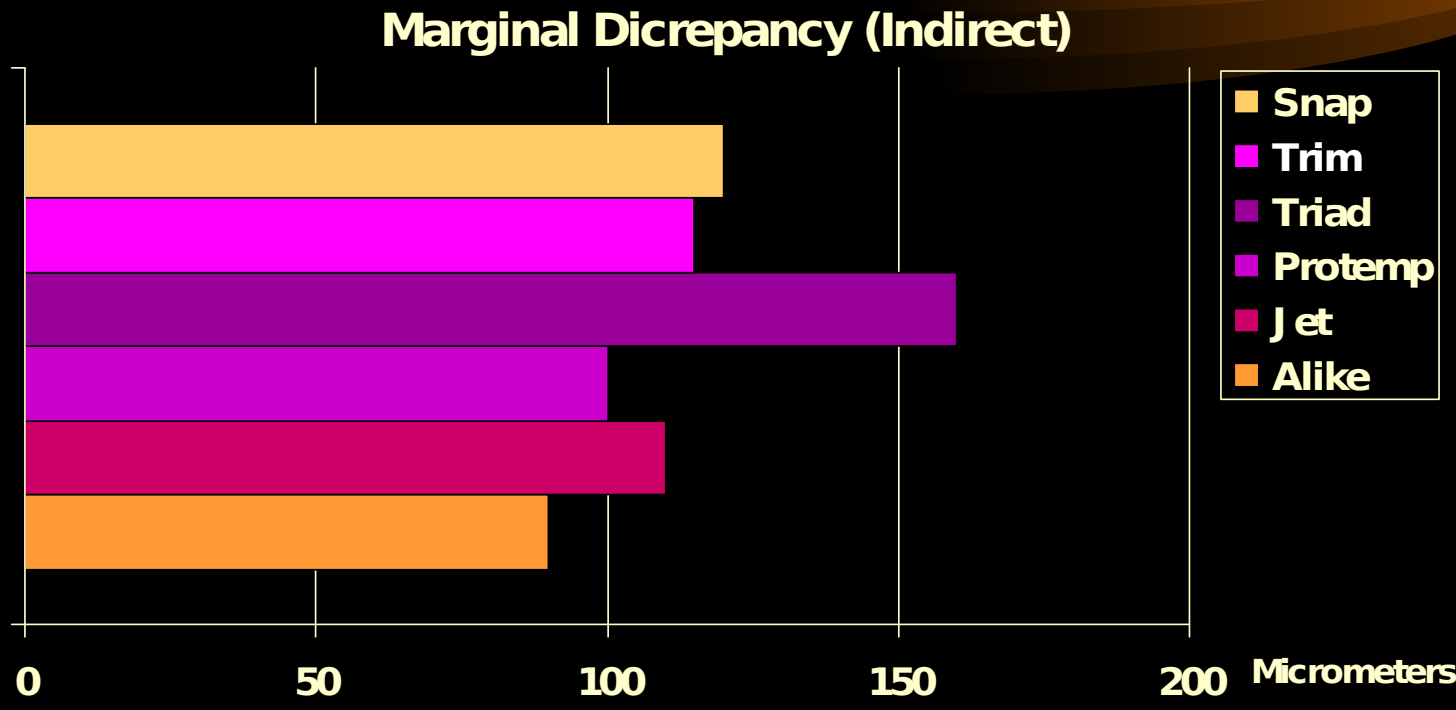


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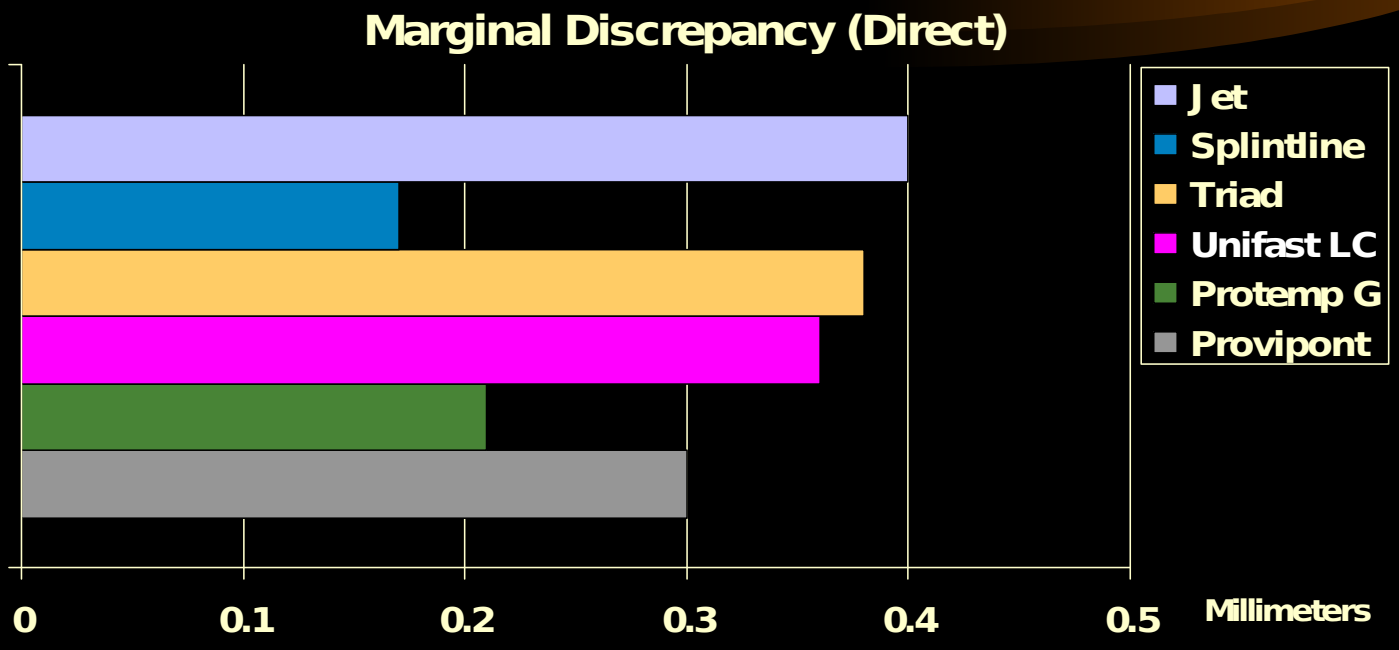


Tjan AH, Castelnuovo J, Goichi S. Marginal fidelity of crowns fabricated from six prorietary provisional material. .Journal of Prosthetic Dent 1997;77:482-485

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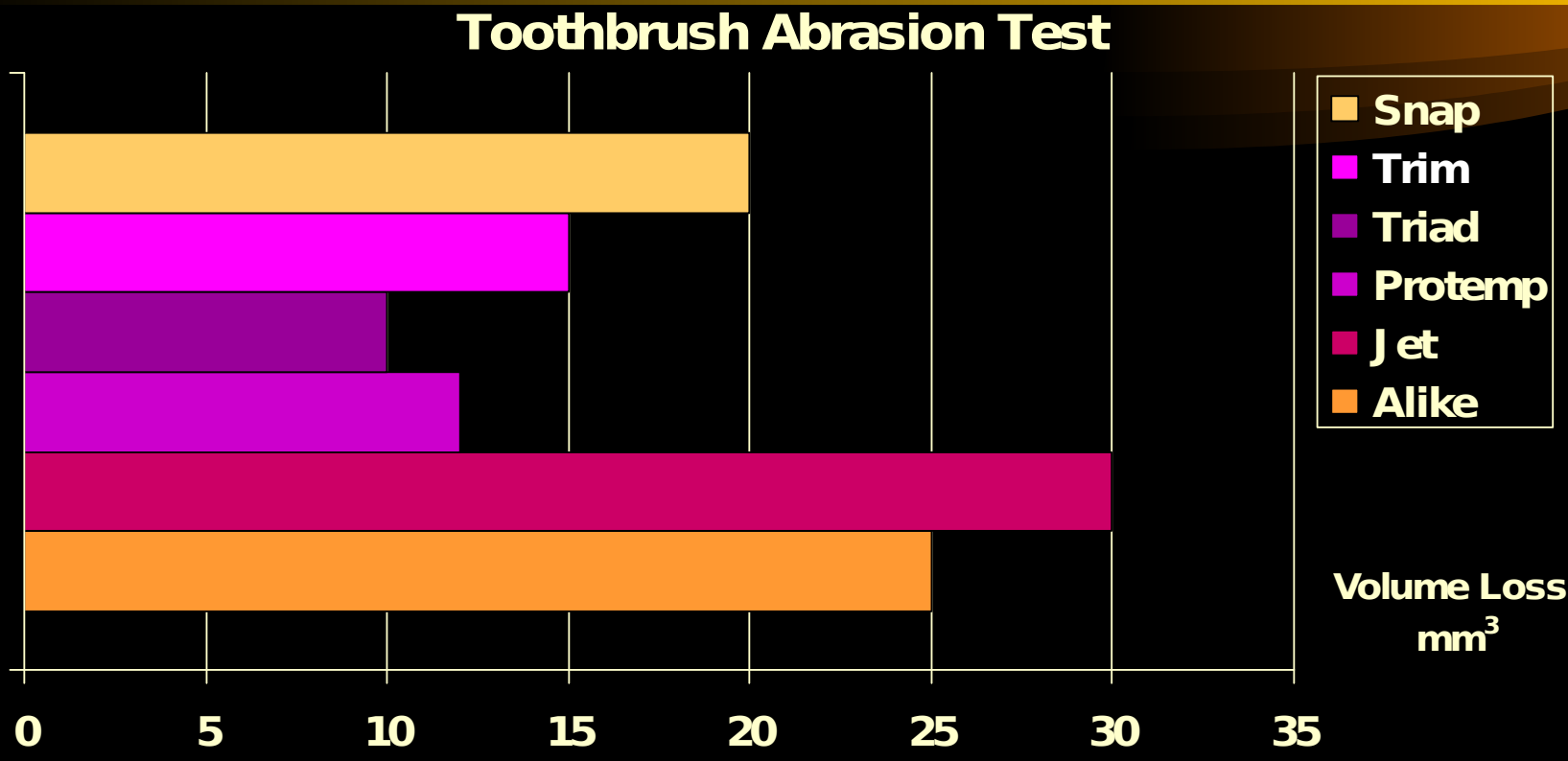


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| Resin Comparison | Iso-Temp | Luxatemp/ Integrity | Protemp II | Protemp Garant | Provipont DC |
|---|---|---|---|---|---|
| Shades | A1 A2 A3.5 C2 | A1 A2 A3.5 | A2 B3 | A1 A3 B3 | A1 A3 A3.5 |
| Working Time | 60 seconds | 30-40 seconds | 2 minutes | 60 seconds | 60 seconds |
| Remove from mouth | 3 to 6 minutes | 60 seconds | 2-4 minutes | 1.5 to 2.5 minutes | 2-2.5 minutes |
| Wait time to finish | light cure | 5 minutes | 3 minutes | 3 minutes | light cure |
| Light cure | Yes | No | No | No | Yes |

| Resin Comparison | Iso-Temp | Luxatemp/ Integrity | Protemp II | Protemp Garant | Provipont DC |
|---|---|---|---|---|---|
| Extended Flexible Stage | Yes | No | No | No | Yes |
| Minimal Taste or Odor | Yes | Yes | Yes | Yes | Yes |
| Minimal Heat | Yes | Yes | Yes | Yes | Yes |
| Minimal Shrinkage | Yes | Yes | Yes | Yes | Yes |
| Automix | Yes | Yes | No | Yes | Yes |

| Acrylic Comparison | Unifast | Acrylic |
|---|---|---|
| Extended Flexible Stage | Yes | No |
| Minimal Taste or Odor | No | No |
| Minimal Heat | No | No |
| Minimal Shrinkage | No | No |
| Automix | Yes | No |

| Acrylic Comparison | Unifast | Acrylic |
| --- | --- | --- |
| Shades | A2 A3 B2 B3 C2 Translucent | 12 Shades Light incisal Dark incisal |
| Working Time | 30-40 seconds | 40-60 seconds |
| Remove from mouth | 2 minutes | 3 minutes |
| Wait time to finish | Light Cure | 5 minutes |
| Light Cure | Yes | No |

# Provisional Restorative Materials

## Iso-Temp

Self cures to a rubbery stage and is light cured for the final set

Contains Ethoxylated Bis-GMA and Urethane dimethacrylate resin

# Provisional Restorative Materials

## Integrity/Luxatemp

Bis GMA composite resin formulation

Cartridge dispensed

3 shades: A1, A2, A3.5

Precise mixing ratio every time

# Provisional Restorative Materials

## Protemp II

2 Shades

Low heat release

Easy to dispense

No odor

Durable

Good esthetics

## Protemp Garant

3 shades

Low heat release

Automix

No odor

Durable

Excellent esthetics

# Provisional Restorative Materials

## Provipont DC

- Dual cure
- Automix
- Difficult to finish and polish
- Stain resistance low

# Provisional Restorative Materials

## Direct Technique

- Impression of Diagnostic wax-up
- Matrix fabrication and shade selection
- Place material in matrix
- Air and water prevents pulp damage
- Removal and replacement offsets polymerization shrinkage
- Trim and polish with pumice

# Provisional Restorative Materials

## Indirect Technique

- No direct monomer exposure
- Less chairside time
- More expensive
- Impression of prepared teeth

## Indirect-Direct Technique

- Reline prefabricated restoration

# Provisional Restorative Materials

Extrinsic Characterization allows the placement of colorants and modifiers in specific areas. Lowering the value, increasing the intensity or modifying the color, placing specific details of characterization and accenting interproximal areas are a few of the applications.

Minute stain  Colored Chalk  Light Cured Resin

# Provisional Restorative Materials

## Microfill Light Cured UDMA Composites

### Advantages

- Nonstress bearing preparations
- Low curing temperature
- Low shrinkage
- No mixing
- Ease of use and repair
- No cement required

### Disadvantages

- Expensive
- Radiolucent
- Nonpolishable
- Low strength
- Low wear resistance

# Provisional Restorative Materials

## Polishability

- Medium and fine cuttle disks, pumice, and acrilustre developed significantly smoother surfaces on composite resins than without acrilustre.
- For unfilled resins, the use of acrilustre was not significantly different.

Wang RL, Moore BK, Goodacre CJ, et al. A comparison of resins for fabricating provisional fixed restorations. Int J Prosthodont 1989; 2:173-84

# Provisional Restorative Materials

## Color Change

Ultraviolet Irradiation

Elevated Water Temperature

Color Stability Test

Extrinsic Stains

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# Provisional Restorative Materials

## Ideal Provisional Cement Properties

Good marginal seal
Low solubility
Adequate working time
Convenient dispensing
Provisional polymer compatibility
Strong but easily removed

# Provisional Restorative Materials

## Provisional Cements

Noneugenol cements: Nogenol and Dycal

Eugenol Cements: Temp-bond and IRM

Light and self curing cements : Provilink

# Provisional Restorative Materials

## Provisional Reinforcement

Heat processed acryl resin provisionals

Polyethlene fiber reinforcement

# Provisional Restorative Materials

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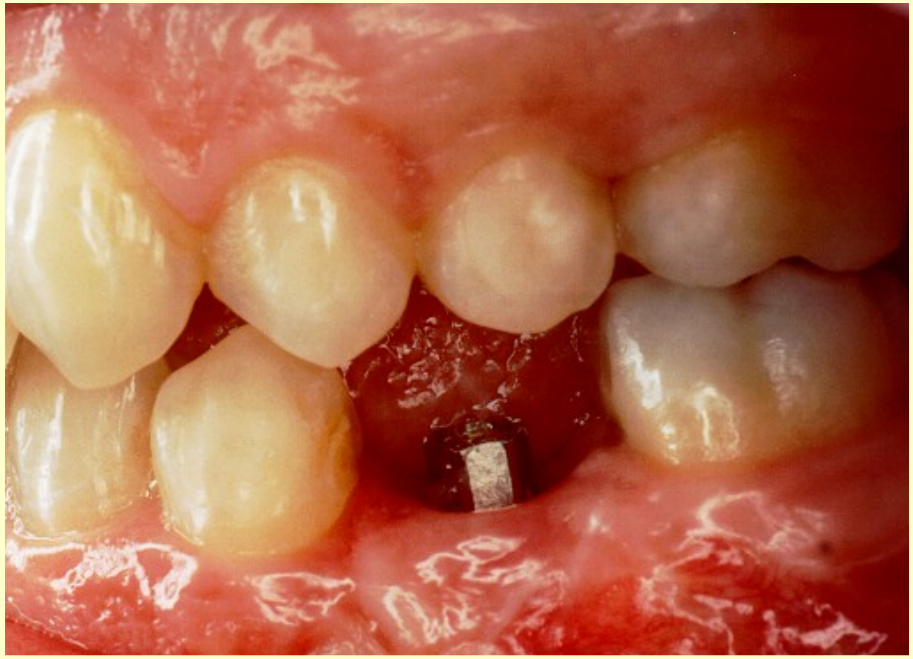

# Provisional Restorative Materials

## Integrity

# Provisional Restorative Materials

# Provipont DC

Provisional Restorative Materials

# Implant Provisionals

# Provisional Restorative Materials

## Gingival Recession

Common occurrence with subgingival margins

Generally less than one millimeter

Can be related to time patient wears the provisional

Donaldson D. “Gingival recession associated with temporary crowns.” J Periodont 1973; 44:691-696